Project to Build Man Crank Starting Old Car Whirligig

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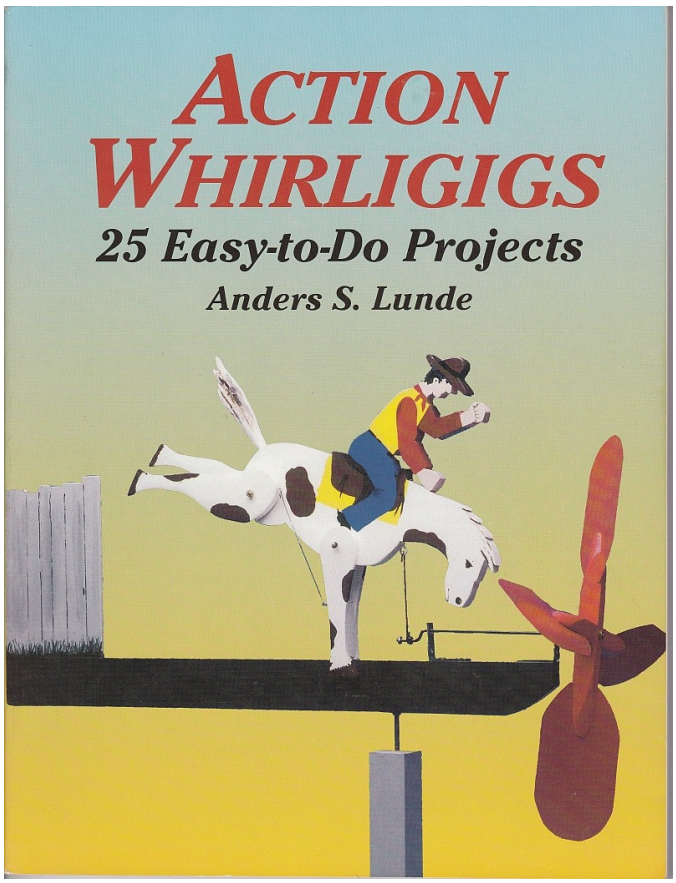
July 2011

I decided to make another whirligig. I used the baseline pattern from the whirligig book.



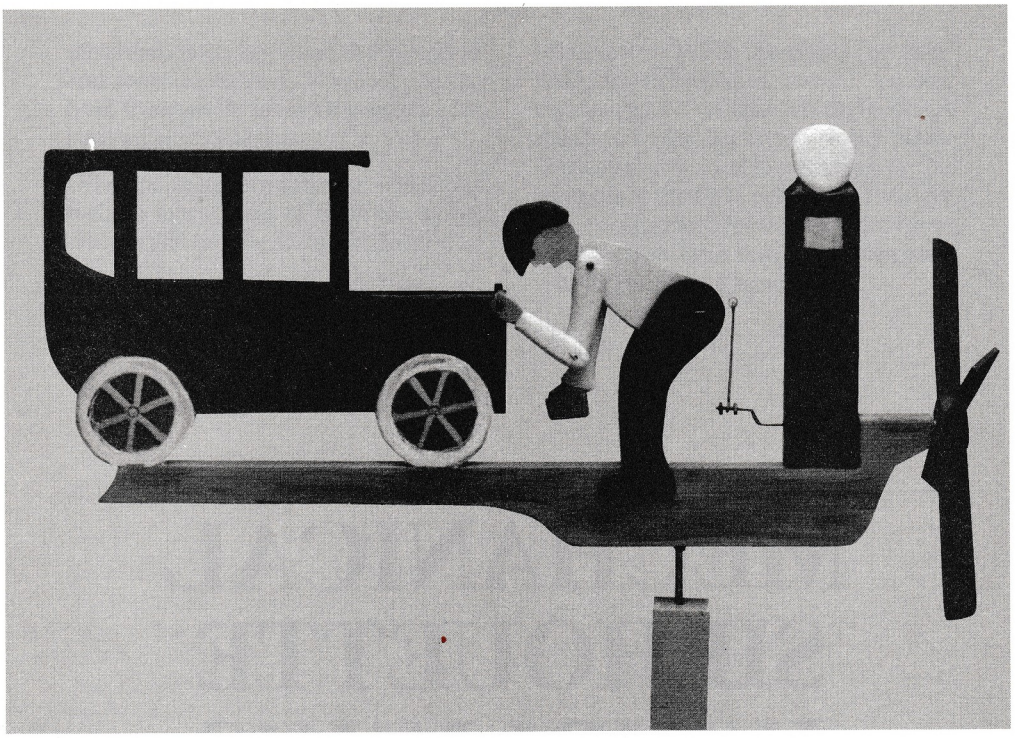


Figure 4-1. Cranking the Car whirligig.

Cranking the Car

The date of the Cranking the Car whirligig (Fig. 4-1), unlike most whirligigs, can readily be established. It belongs to the automobile era which began at the end of the 19th Century. The electric self-starter was first used in 1912 but did not become common until the 1930's. For some years thereafter the crank was used as a supplementary starter.

Most old cranking whirligigs have the driver on the side as a jointed figure with the drive shaft acting as a crank. Others have the drive shaft passing through or under the car while the cam acts as the crank. These whirligigs, however, do not show the action as it really occurred. I decided to create a whirligig which realistically shows the action in silhouette. The driver is going through the motions of cranking up the car with his stiff right arm; his left hand rests on the radiator. The auto is something I made up from my recollections of my father's 1935 Chevrolet.

MATERIALS

Platform: 3/4" x 2-1/4" x 22-1/4"
Extension: 3/4" x 1-1/4" x 2"
Cover: 1/4" x 3/4" x 2"
Gas Pump: 3/4" x 2" x 10"
Auto: 3/4" x 9" x 13"
Driver: Legs (2): 1/4" x 2-1/2" x 6"
Torso: 3/4" x 2-1/2" x 7"
Arms-right: 1/2"x 1-1/4" x 5"
left-upper: 1/2" x 1" x 3-1/2"
lower: 1/2"x 1" x 3-1/4"
Drive Shaft: 1/8" rod, 7-1/2" long, with 1/2" cam
Tension Pin: 2" long, 3/8" thick with cap
Tubing: 3/16", 4" long
Axle: 3/32" rod, about 3" long
Connecting Rod: 1/16" or 3/32" rod
Screw Eye: 3/8"

PROCEDURE

1. Cut out the platform and mark the locations of the objects that will be attached to it (Fig. 4-2). Drill a 3/8 in. hole for the tension pin and cap 6 in. from the front end of the platform. Drill holes for the screws which will hold the automobile in position at 13 and 20-1/2 in. from the front of the platform.

2. Cut out the platform extension, then cut a 3/16 x 3/16 in. slot for the drive shaft tubing, as instructed in the general procedures. Glue/brad the extension piece in position. Cut out the gas pump. Mark where the tubing will continue through the gas pump and drill a 3/16 in. hole through it. Screw the pump in place. Then glue/brad the cover in position.

3. Next, make and insert the standard drive shaft, as instructed in the general procedures.

4. Cut out the automobile. If you wish, carve out some of the details for highlighting. The model shows windows cut out. You may wish to place silhouettes of passengers in the car. Secure the auto in place with glue and 1-1/2 in. No. 6 flathead wood screws.

5. Cut out the parts of the driver. Drill a 3/32 in. hole through the center of the hip of one leg. The legs are mounted on the platform using glue and brads with the heels 6-1/4 in. from the front of the platform and the soles along a line 3/4 in. from the top edge of the platform. Holding the drill bit level and straight, drill through the first leg hole through the second leg. Drill a 1/8 in. hole through the torso hip and line it with tubing.

6. Mount the torso between the legs with a 3/32 in. brass rod. Position the right arm. Cut an angled piece out of the right shoulder so the hand will be in the center of the auto front. Test the arm as the torso moves to make sure it doesn't strike the car, then attach it to the torso with glue and brads. Drill small holes at the shoulder, elbow, and hand of the left arm pieces (Fig. 4-3). Hold the shoulder and hand in position with a 3/4 in. small roundhead screw and the elbows together loosely with wire. The joints should move freely.

7. If you have not already done so, make the drive shaft with a small cam (not more than 1/2 in.). Place a small screw eye in the tail of the torso and at-

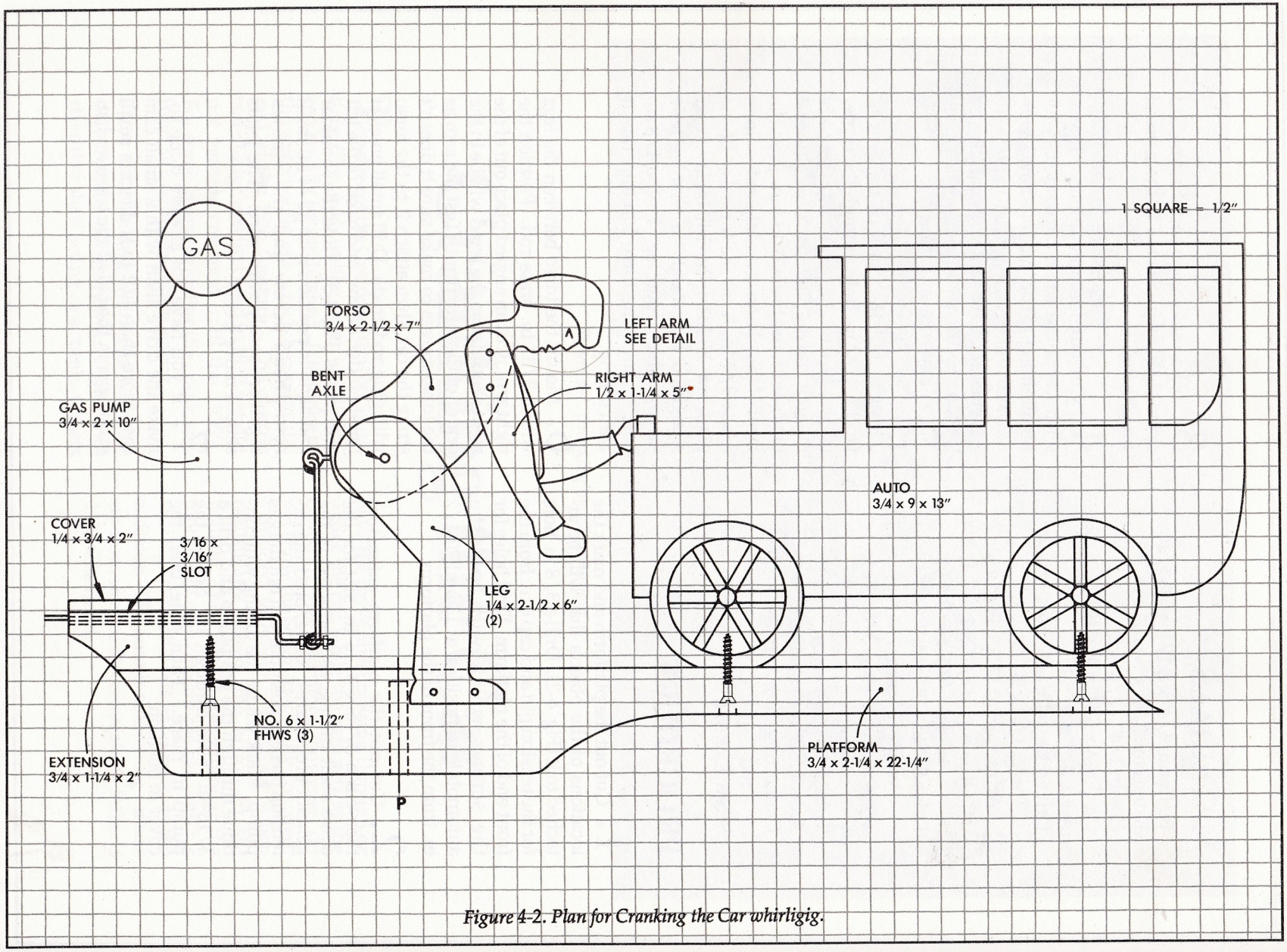


Figure 4-2. Plan for Cranking the Car whirligig.

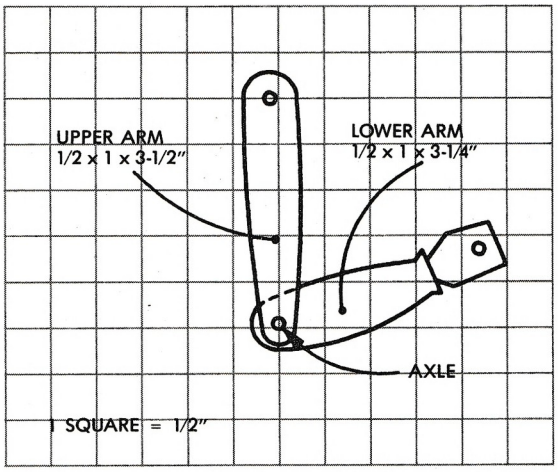


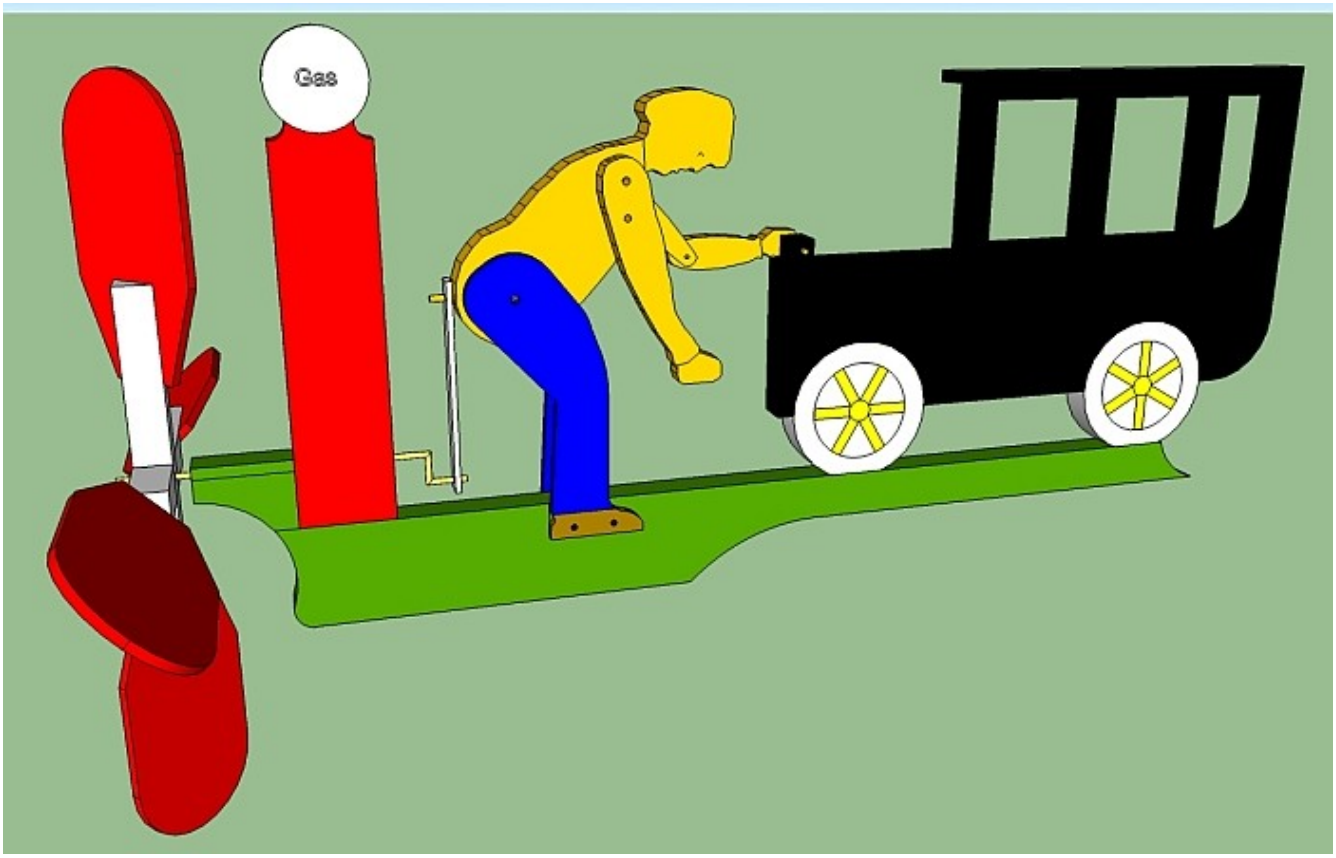
Figure 4-3. Arm detail.

tach a connecting rod between the torso and the cam. Check the movement to make sure all parts work freely.

8. Make a propeller, drilled in the center with a 7/64 in. bit. The best propellers for this whirligig are the cross-lap propeller and the 4-blade Maltese Cross propeller with 6 in. blades. Turn the propeller on the drive shaft with washers in place. You may need a spacer for the drive shaft, but it will not be more than 1/4 in. in length.

9. I painted the automobile black with white tires and yellow spokes, and the gas pump red with a white top with GAS printed on it. The man has blue pants and a yellow shirt. The platform is gray. Of course, you can select your own colors.

Redrawing the model in Sketchup



A Retrospective Note from February 2024

I built most of the models in the book, then tried running them outside in the wind. I lived on the west side of our small town of Fairbury, Illinois, with a corn field to the west. Our strong winds come across the prairie and hit my house.

I found that all of the models in this book are woefully under-designed with respect to the ability to last under high winds.

I had to go back on most of the models and “beef them up”, especially the moving parts. I used larger diameter brass shafts that I bought from McMaster-Carr online so they would hold up for example. So don’t be surprised if you build a model to the plans in this book, it will not last long in the wind, and you will have to beef up the design at the weak points.

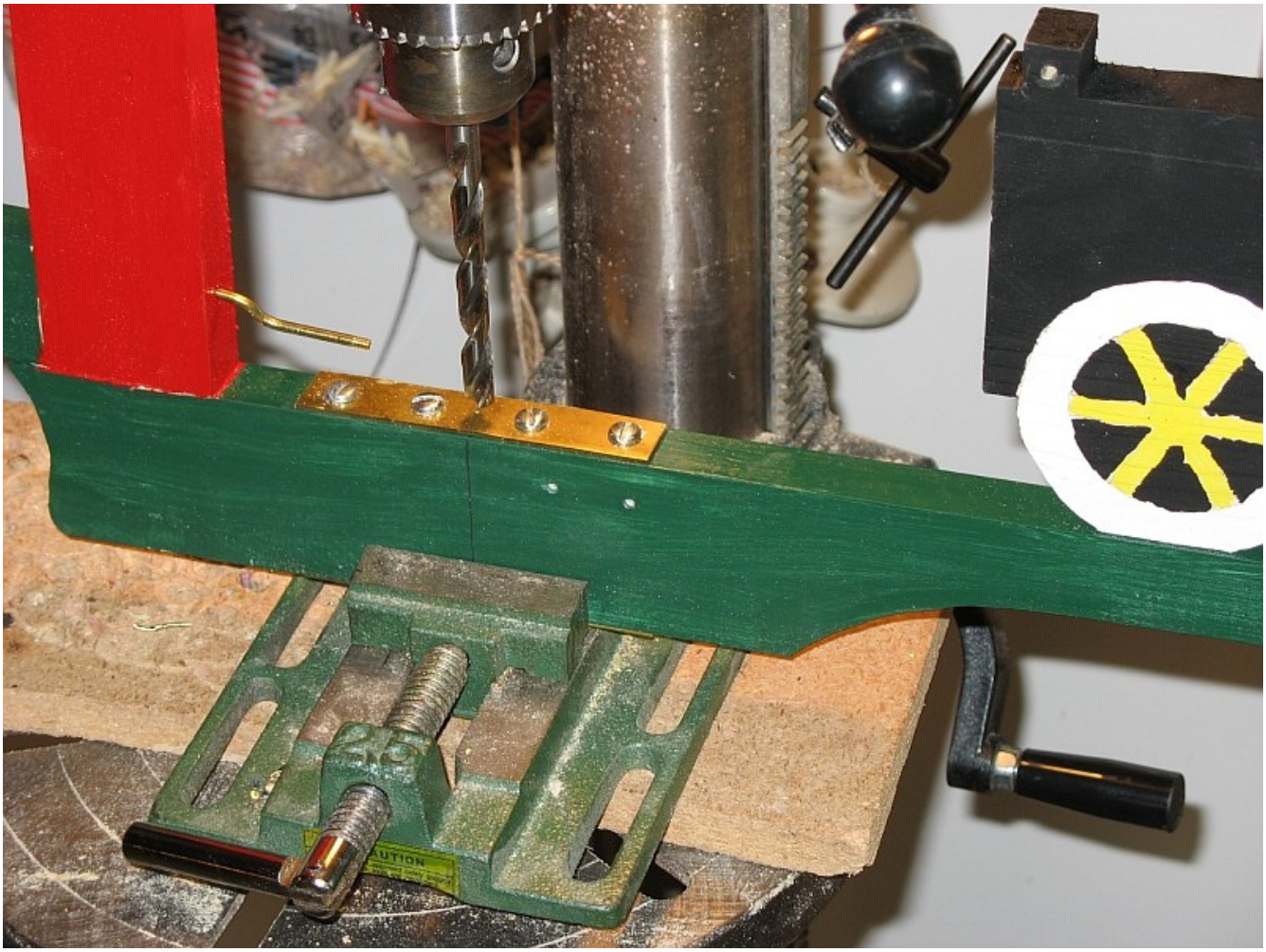
Painting the Model

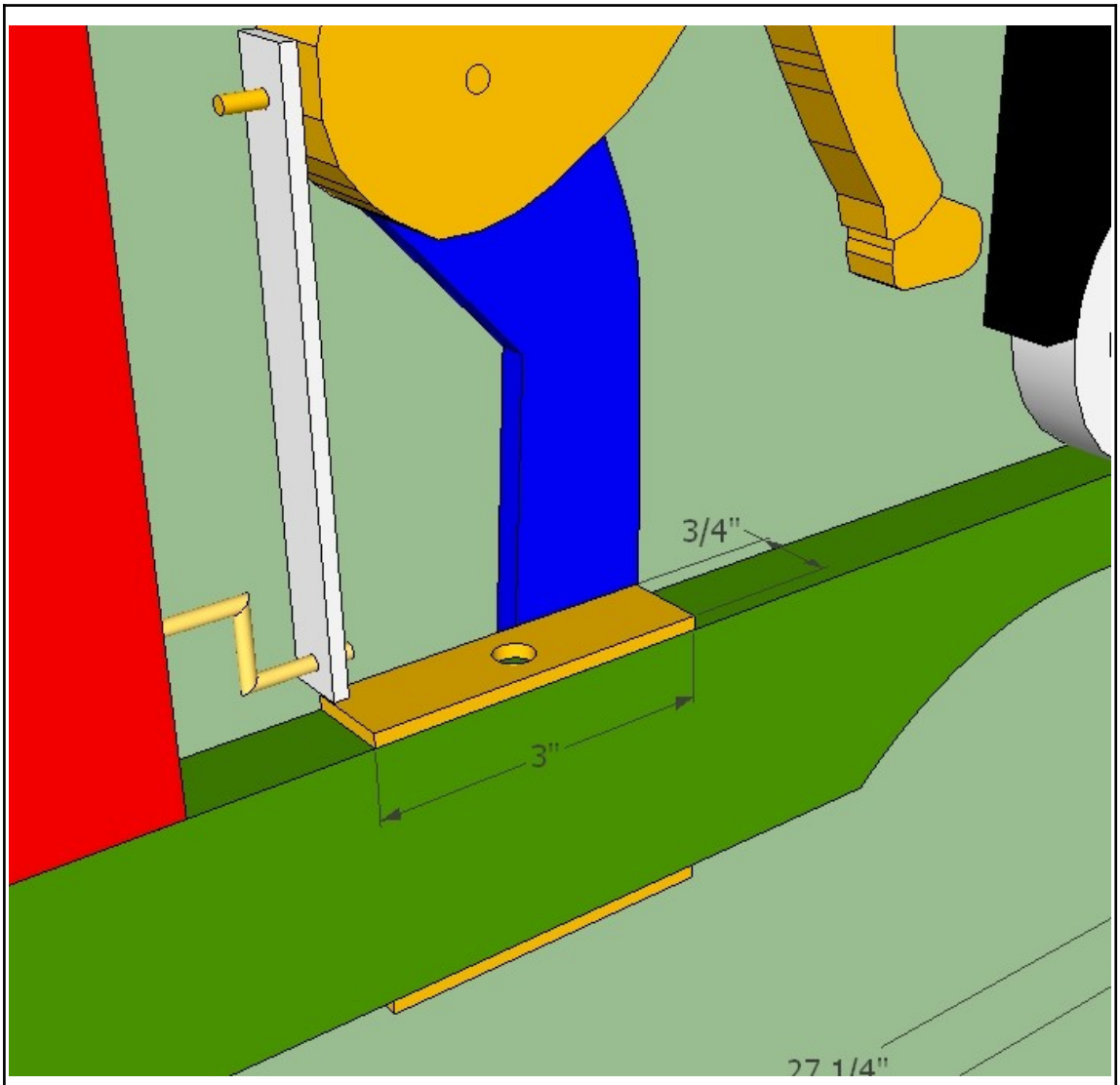
Next I cut out all the pieces and then painted them. I used 5 colors.

Improved Mounting Method

I decided to try a new mounting method to mount the whirligig on a 5/16" threaded rod. I cut out 2 pieces of brass plate 3/4" by 3" by 1/16" thick. I secured the brass plates to the whirligig using 4 sheet metal screws.

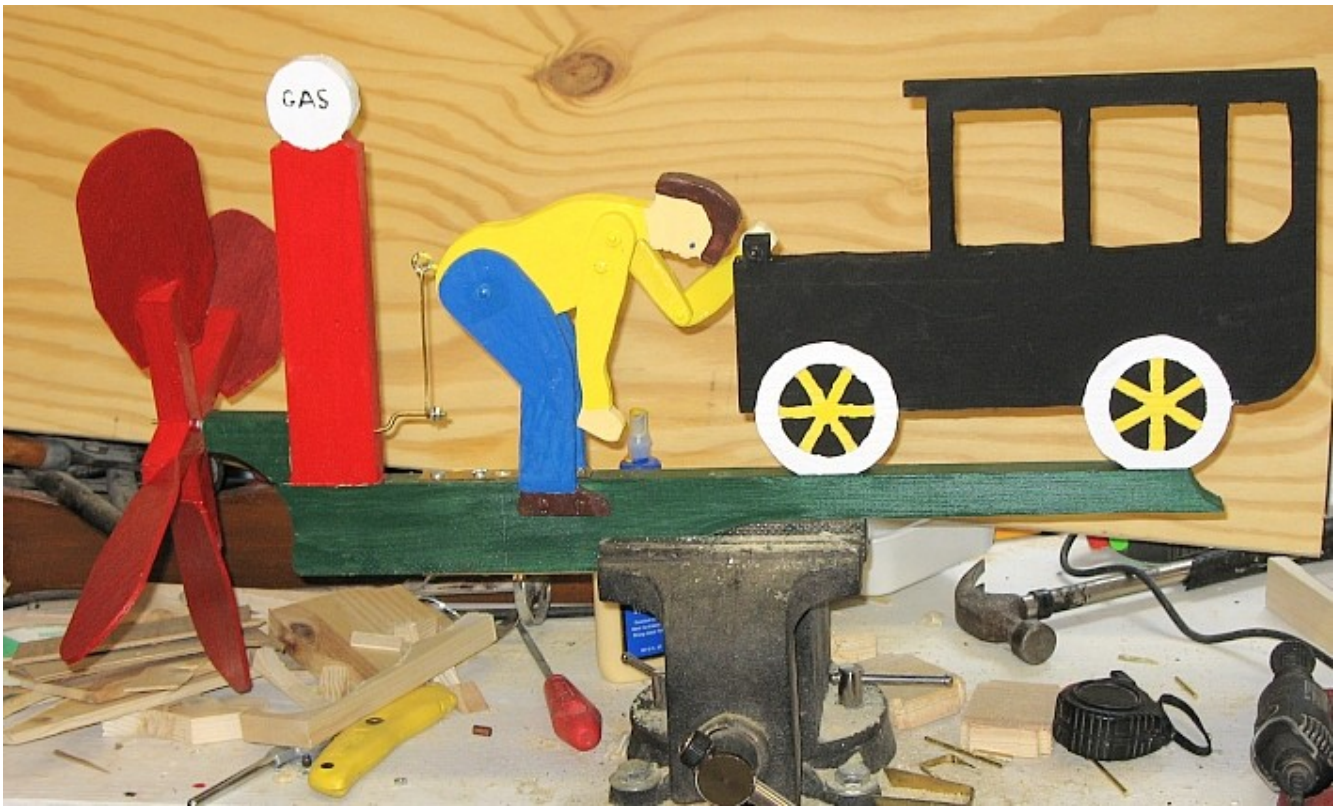
I placed the whirligig horizontal in the portable vise. I placed a level on top of the car to make sure it was horizontal in the drill press. I then drilled a 11/32" diameter hole through the 2 brass plates as shown below:



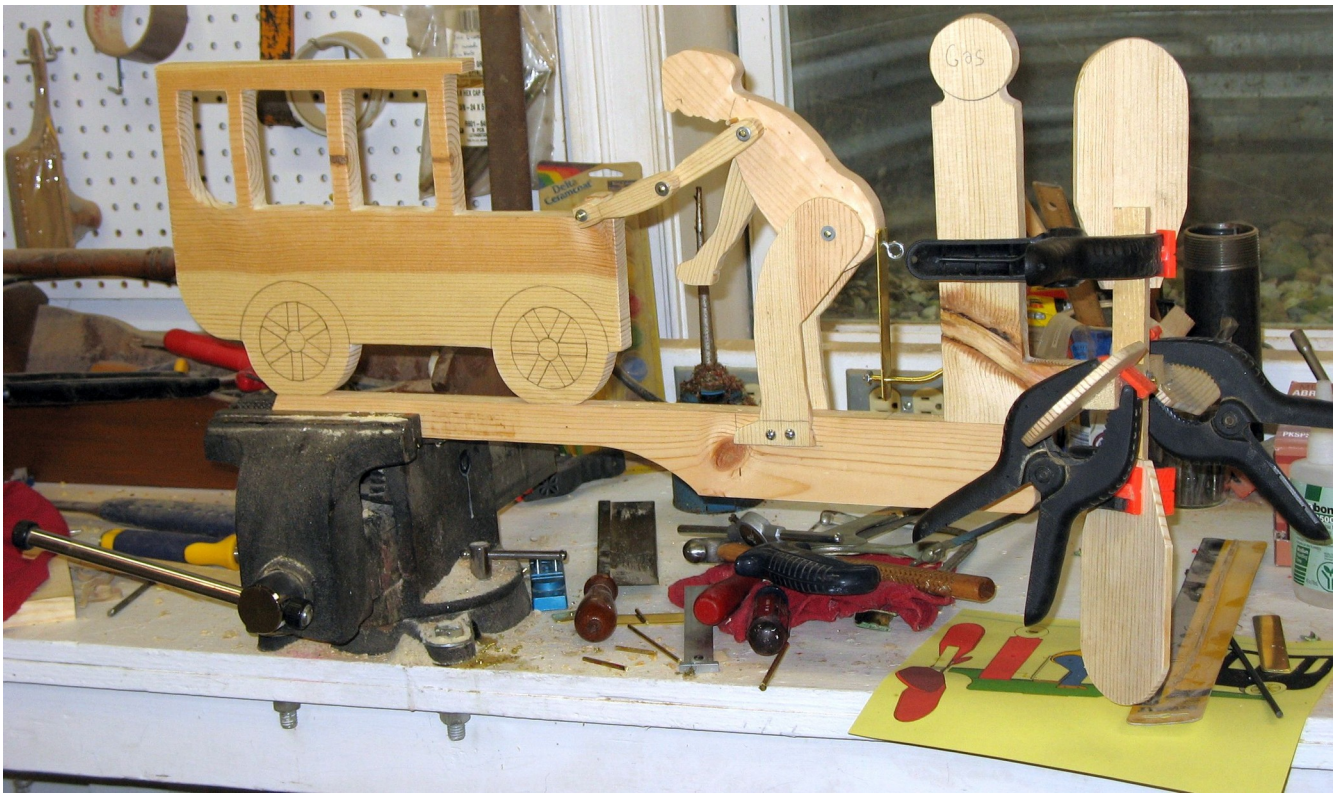


NOTE: Sheet metal screws attaching brass plates to green wood base are not shown

Painted Whirligig with Paint Drying in the Vise



I used the vise to hold the model while I painted it. Here is a photo of the unpainted model in the vise:

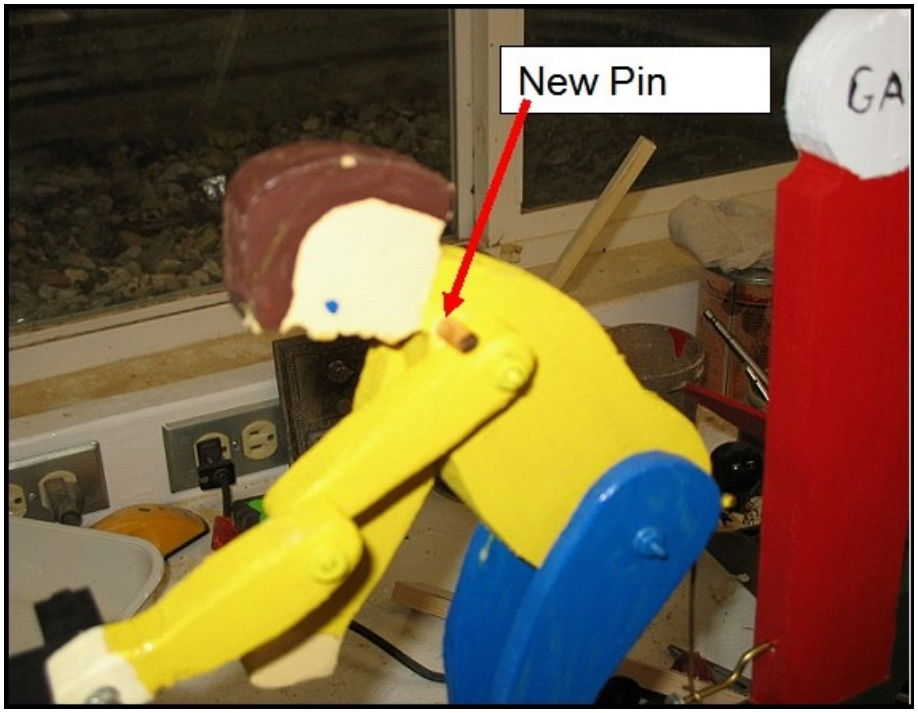


Runs Relatively Smoothly

This whirligig runs very smoothly with no clanking metal noise like the woodpecker whirligig has. Probably because the crankshaft is retained in wood versus 2 L-shaped brass brackets.

Testing Finished Whirligig Outdoors

As I tested this whirligig outdoors, it became bound up because the man's shoulder rose too high. I added a 1/4" dia wood dowel to the man to keep his shoulder from rising too high:



YouTube Video

I made a Youtube video of this model. Here is a link to the video.

https://www.youtube.com/watch?v=nkCq5Y4ENQY

2024 Photos of 2011 Finished Whirligig

Back in 2011 when I built this one, I did not make many photos of the finished model. So, in February of 2024, I took the photos below.

MAGNIFYING GLASS
4X
GAS

2x
5x

GAS

GAS

Sketchup Model Uploaded to Warehouse

Sketchup is a free drafting program that I use.

I uploaded my Sketchup model to the Warehouse.

You can access it using this link.

https://3dwarehouse.sketchup.com/model/12ed7dd6038e0f5e57d00ca44581cd53/Whirligig-of-man-crank-starting-old-car

Closing Thoughts on This Project

After beefing up the brass rod crankshaft diameter, this model held up pretty well to the high winds we have in Central Illinois.

My crankshaft is made from 1/8” diameter brass rod. I bought a threading tap from McMaster-Carr to be able to make 1/8” threads for the nuts to attach to.

I later made a hand-cranked version of this model, but that is another whole project!!

Dale C. Maley